Business Forum

COMMENTARY | The Nash equilibrium

NATIONS' FATES TIED TO DOLLAR

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Guest Columnist

John Nash was a brilliant and famous mathematician whose story was told in the movie "A Beautiful Mind." Among his more famous contributions is the idea of the so-called "Nash equilibrium."

Essentially, a Nash equilibrium occurs in a multiplayer game environment where the players find themselves in positions such that any move an individual player would make would only work to his detriment. All the other players are in the same position, so none of the game parameters is changed by the players. The players are "stuck" in their current positions, as they are unwilling to lose ground and unable to gain any.

Some analysts and economists, including the brilliant Stephen Roach of **Morgan Stanley**, have applied the Nash equilibrium as a reason for the failure of the U.S. dollar to fall further than it has versus other currencies, especially Asian ones, and as the reason that U.S. market interest rates have not risen further.

Essentially, the other countries need U.S. consumerism to fuel their export-driven economies, so they continue to accept dollars and invest in dollar-denominated bonds in order to keep their own economies humming and their people employed. It would not work in their self-interests to stop accepting dollars in exchange for their goods, in spite of the danger of future capital loss when the dollar finally has to decline.

The U.S. consumer enjoys low inflation and low interest rates — and higher "wealth" from "increases" in the value of real estate — so he is happy and is able to continue to consume beyond his income savings rate. This appears to be a reasonable real-world application of the

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Nash equilibrium.

Of course, everyone knows that export countries cannot continue to accept increasingly less valuable dollars, so the piper will have to be paid sometime. Still, no one knows exactly when that will occur, and in the meantime they have people to employ and economies to grow. It is hoped that they have been trying to foster the growth of domestic consumerism in order to avoid a complete world depression as the dollar eventually falls and the U.S. consumer is tapped out.

Postulating a steady state in the real world is folly, especially one in which there are a host of central bankers, each with their own agendas for their countries or regions. The dollar index did fall from 2002 through 2004 in an orderly, if fast manner. Unfortunately, the foreign currency losses were almost entirely against the euro and other European currencies. The Asian countries, especially China and Japan, maintained a "peg" against the dollar in order to avoid losing their competitive advantage versus other competitors, especially Asian ones.

I believe the Nash equilibrium started to unwind when the **Federal Reserve** began and continued to raise short-term interest rates. In 2005, the most obvious effect was the improvement of the dollar index, as higher interest rates improved the desirability, and therefore, "defended" the dollar. Initially, foreign central banks did not respond, but they are beginning to, and the dollar has been losing ground versus other currencies since the dollar index peak in November 2005.

Now the Nash equilibrium is disrupted and the players are jockeying for position.

According to Roach, the general agreement is that the dollar must fall another 20 percent to 25 percent in order to alleviate our persistent trade deficit and future inflation problem. The question is whether the drop is orderly and less disruptive according to a plan put together jointly by the G-7 industrialized countries and the **International Monetary Fund** or violent and disorderly.

Whether or not all parties work together to execute an orderly decline is anyone's guess. Either way, the dollar will decline further and inflation will become more obvious to U.S. consumers.